

# Basics of (Digital) Photography 101

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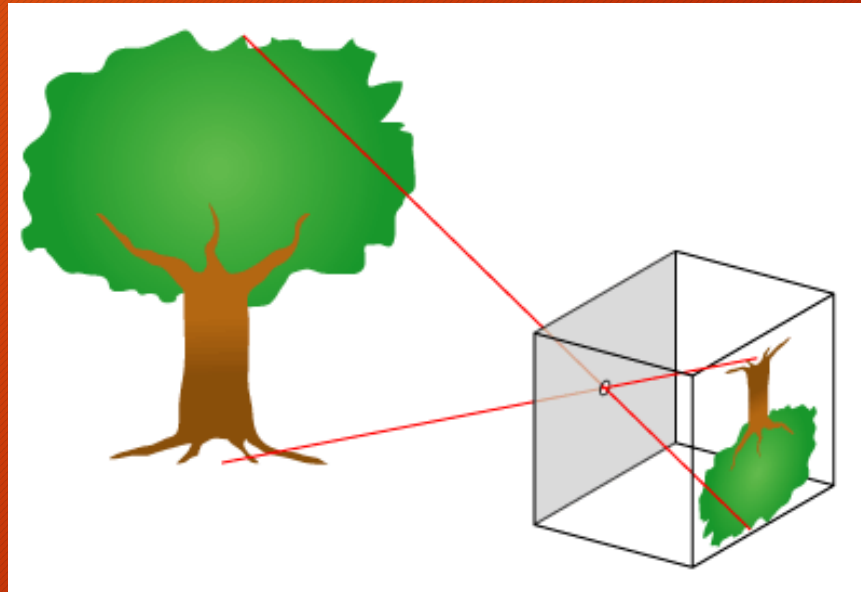
# What is Photography?

Photography is the Art of Painting with Light

- What do we need for Photography?

## Camera

- What is Camera?



# Camera

- Camera Body
  - is the blood and guts of your camera. It holds all the electronic components required for your camera to operate and produce a photograph including the image sensor, memory card, and battery, as well as acting as a base for lenses to be attached
- Lens
  - is responsible for focusing light onto the image sensor producing the image. Like your eye lens
- Aperture
  - controls the amount of light (and depth of field and focus of an image)
- Shutter
  - Controls the length of time the image sensor is open to light and able to expose the image
- Sensor
  - is the *film* to a digital camera. Sensors are made of millions of tiny light sensitive cells called pixels



# Camera? *(Continue)*

- Viewfinder
  - allows the photographer to view the composition as it will be exposed onto the sensor
- Light Meter
  - allows the photographer to take readings of the various light and dark values within the photographic composition to determine correct exposure
- Memory Card
  - allows digital images to be stored, saved, and reviewed
- Built in Flash
  - comes in handy for low light situations where proper exposure can't otherwise be achieved and the subjects are within close proximity of the photographer

# Old Camera



# ISO (ASA)

refers originally to film speed or sensitivity and is a term among many carried over from film photography into the digital realm. Digital cameras do not use film and in its place is a digital sensor, which reacts to light in much the same way as a piece of film would. Changing the ISO up or down varies the sensitivity of the sensor to light, thus increasing or decreasing exposure. Low ISO numbers (5, 25, 50, 100...400) are less sensitive to light requiring longer exposures are required to obtain proper exposure values. High ISO numbers (500, 800, 1000...6400) are far more sensitive to light requiring less exposure time to obtain proper exposure values.

- **Why not use a high ISO value all the time?**

Traditionally, high ISO film (especially that above 500) produce negatives with high amounts of visible grain in the image. This problem extends into the digital world in what is known as Noise. Noise presents itself as randomly scattered, oddly colored pixels, most evident in the dark areas of digital photographs. In the early days of digital photography Noise was a considerable problem but because of great innovation in processors, sensors, and other features, newer digital cameras are able to operate at higher ISO's without noise being a considerable issue (ISO 800 is my limit) while functions such as 'Long Exposure Noise Reduction' and 'High ISO Noise Reduction' (Nikon), help to remove Noise during processing. Most post-processing programs (Camera Raw, Adobe Photoshop) offer a bundle of tools capable of finding and eliminating digital noise.



# Exposure

- Exposure is the total amount of light allowed to fall on the photographic medium (photography film or image sensor) during the process of taking a photograph
- Each photo can be:
  - Correct Exposure
  - Under Exposure
  - Over Exposure

# Exposure Triangle

Shutter Speed  
→ *Motion Blur*



Aperture  
→ *Depth of Field*

ISO  
→ *Noise*



# Exposure Modes

- **Programmed (AUTO)** - allows the camera programs to automatically select both aperture and shutter speed settings.
- **Shutter Priority** - allows the photographer to select the desired shutter speed that remains constant, allowing the camera to automatically select the proper aperture.
- **Aperture Priority** - allows the photographer to select the desired aperture that remains constant, allowing the camera to automatically select the proper shutter speed.
- **Manual** - allows the photographer to select both the aperture and shutter speed settings.

# Exposure Modes *(Continue)*

- How to select Exposure mode:
  - Auto
    - When you want to MAKE IT EASY and FAST. Of course you NEVER get the best photograph out of your camera
  - Aperture (A, Av, or ...)
    - When you want to manually set the Depth of Field
    - The bigger (number of) aperture, the bigger depth of field
    - The smaller (number of) aperture, the smaller depth of field
  - Shutter Speed (S, or Tv or T)
    - When you want to freeze movements, or make a blurry picture out of a moving object
    - The higher speed, the sharper photo



# Different Modes

Speed Mode  
(gives you the fastest available Shutter Speed)



Aperture Mode  
(gives you small number, means large aperture)

Macro Mode  
(gives you small number, means big aperture and close focus)

Landscape Mode (gives you big number, means small aperture)



# Depth of Field

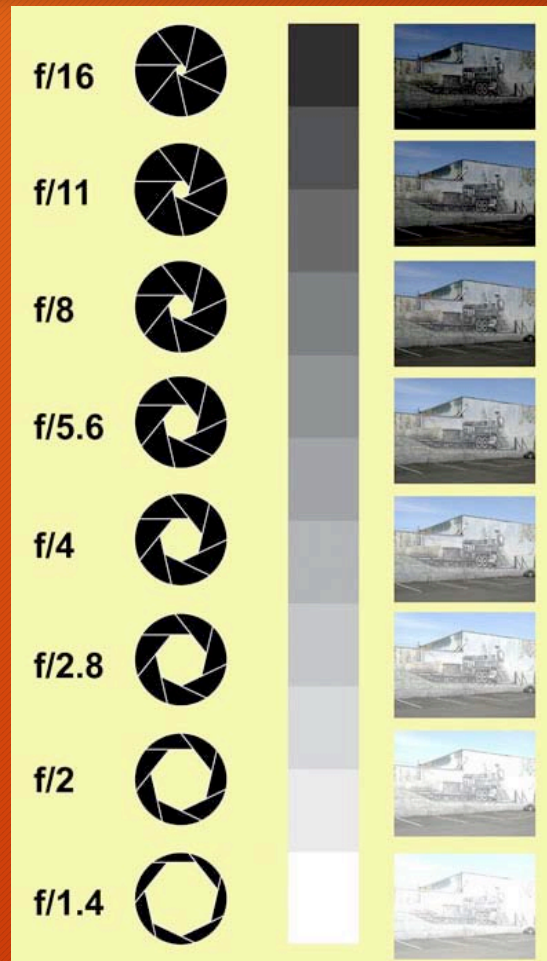
- The Aperture Controls Light and Depth Of Field
  - The aperture adjusts the size of the opening through which light passes to the image sensor. The aperture can be opened up to let in more light or closed (stopped down) to let in less. In respect to just exposure, smaller apertures let less light strike the image sensor so the image is darker. Larger apertures let in more so it's lighter. As with the shutter speed, the aperture also affects the sharpness of your picture, but in a different way. Changing the aperture changes the depth of field, the depth in a scene from foreground to background that will be sharp in a photograph. Smaller apertures increase depth of field while larger ones decrease it. For some pictures—for example, a landscape—you may want a smaller aperture for maximum depth of field so that everything from near foreground to distant background is sharp. But perhaps in a portrait you will want a larger aperture to decrease the depth of field so that your subject is sharp but the background is soft and out of focus.

# Shallow Depth of Field



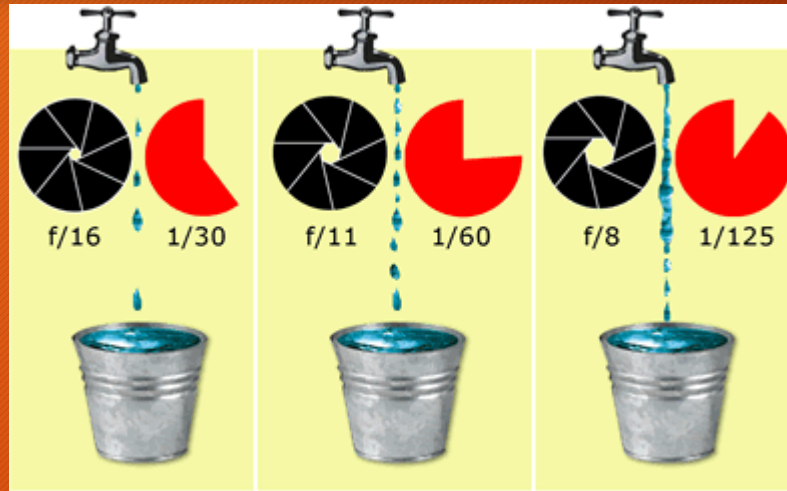


# Aperture Values





# Using Aperture and Shutter Speed



- When you open a faucet all the way, water gushes out so you fill a bucket in a very short time. This is the same as pairing a large aperture and fast shutter speed to let in bright light for a short time.
- When you open a faucet just a little, water trickles out and so it takes a much longer time to fill a bucket. This is the same as pairing a small aperture and slow shutter speed to let in dim light for a longer time.
- No matter which combination you choose, the bucket is filled the same amount. Likewise, an image in a camera can be exposed the same amount by various aperture and shutter speed combinations while also controlling motion and depth of field.

Big Aperture (low number), decreases the Depth of Field, background is blurry, good for PORTRAITS





# Another *shallow* depth of field





And another *shallow* depth of field



Small Aperture (big number), increases the Depth of Field, background is sharp, good for Landscape





# Another *deep* Depth of Field



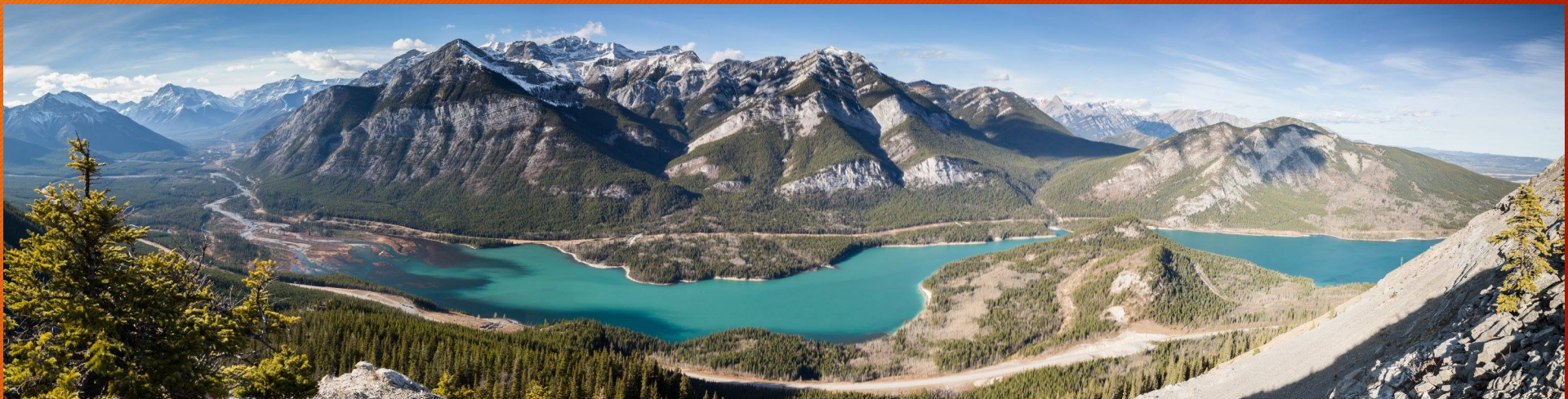


# And another *deep* Depth of Field





# Panorama *Deep* Depth of Field



# Composition / Framing

- **What is the purpose of composition?**
- The purpose of composition is to selectively include or exclude subjects from the photographic frame, with the intent of establishing an appealing visual interaction between the main point(s) of interest and the rest of the image. Defining a single subject, group of subjects, or plane of interest is key to creating photographs that attract the viewer. Too many competing points of interest can be distracting and confusing, causing the eye to aimlessly wander the frame, failing to pull the viewer into the image for closer inspection. It is very important to remember that composition is not just concerned with the visual elements that are included/excluded from the frame, but also has a great deal to do with depth of field and focus. Ensuring your subject is in focus and given depth in relation to other elements of the photograph will have a dramatic impact on the success of any composition.



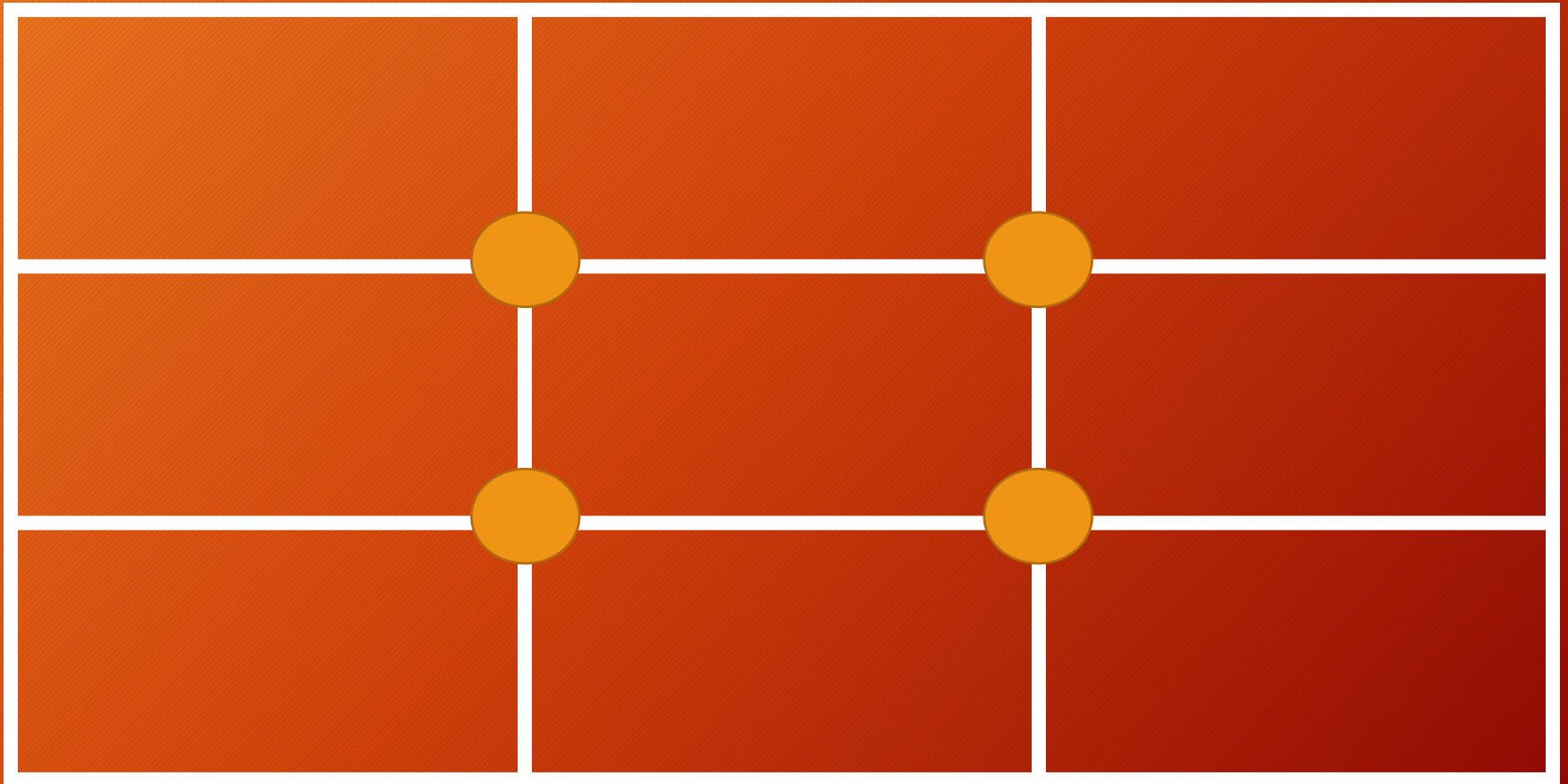
# Framing

- Remove your subject from Centre
  - Center-stage is a great place for a performer to be. However, the middle of your picture is not the best place for your subject. Bring your picture to life by simply moving your subject away from the middle of your picture. Start by playing tick-tack-toe with subject position. Imagine a tick-tack-toe grid in your viewfinder. Now place your important subject at one of the intersections of lines.

# The Rule Of Thirds

- Suggests that if the image frame is separated into 3 even sections both vertically and horizontally (9 total segments), that an effective composition will be achieved if the primary element(s) of the photograph is located at the intersections of these segments.

# The Rule Of Thirds, imagine...

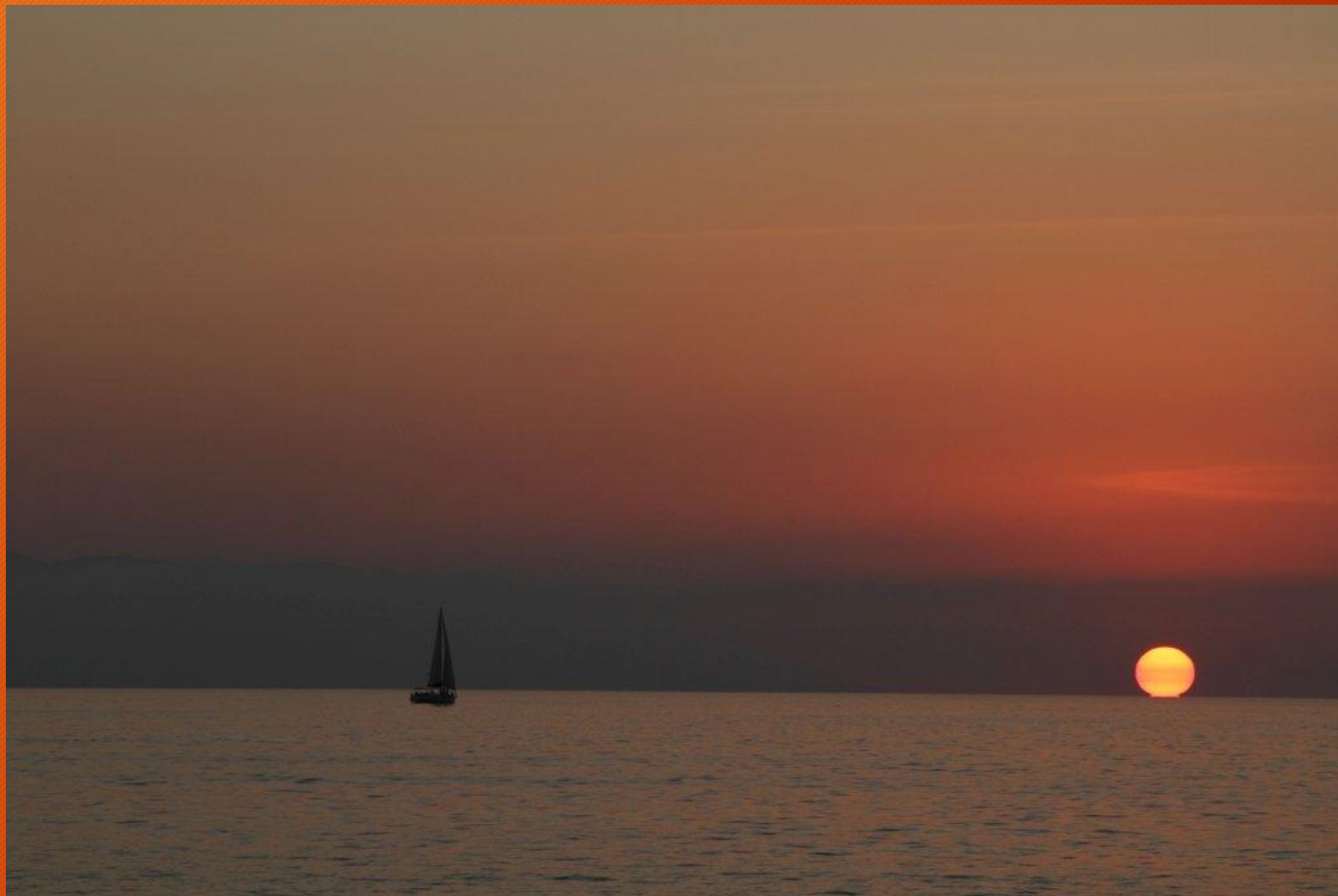




Bad Photo ☹️



Good Photo 😊





# Bad Photo ☹️





Good Photo 😊



Centre-Lens distance is different from subject-Lens distance. Subject out of focus! now what?





# One Third Rule + Fool Focus

1. Look through the viewfinder and position its focus point on the most important part of the scene – your main subject.  
In effect, you center that subject.

2. Press the shutter button halfway down, until the green focus-OK lamp in the viewfinder or LCD glows steadily.

3. Holding the shutter button halfway down, reorient the camera so that your desired composition appears in the viewfinder / screen.

4. Press the shutter button all the way down to take the picture!



# Light Direction

- Front Light (typical)
  - comes from directly behind the camera falling squarely on the subject. Front light removes most surface shadows giving even lighting to the subject and enhancing colors. Front light can flatten the image as highlights and shadows are significantly reduced.
- Back Light (very challenging!)
  - Comes from behind the subject and produces a silhouette effect. Sometimes to properly expose the background and subject, use a 'fill flash' to light up dark shadowed areas against the background.
- Side Light (Very Interesting! (my favourite!))
  - Comes from beside the subject, illumination one side very well, while the other side falls into shadow. When there is a strong difference between the light area and dark shadows it can produce a very dramatic image with a great deal of depth.



# Front Light



# Back Light, no Flash Needed





# Back Light, FLASH NEEDED but without Flash



# Back Light, FLASH NEEDED with Flash





# Side Light



# Tips

- Use High Resolution
- Use Low ISO
- Do not afraid of getting closer to your subject, avoid digital ZOOM as much as possible
- When doing Kids Photography, use simple and plain back grounds, do not use Flash and stay at kids eye level
- Avoid AUTO Mode
- Always back up your pictures, Keep Two Copies
- Once in a while create a folder call it “SELECTION” or ..., copy your favorite pictures into it, and print them
- Where to print: VISTEK (10 Ave 11 St SW) or Costco
- Use Aperture mode/low number for Portraits (A or Av, or Portrai)
- Use Shutter Speed mode/high number for sports (S, Tv)



# Thanks!

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[www.vafa.ca](http://www.vafa.ca)